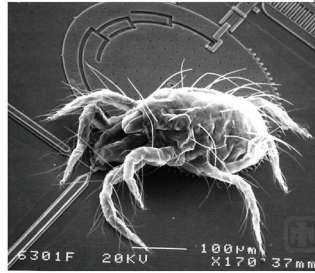


# *things* Natural

## *the Scale of Things....*

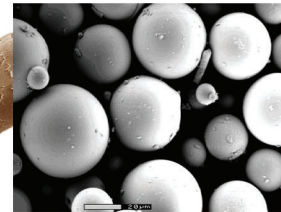
## *Nanometers & More*

Dust mite  
200  $\mu\text{m}$

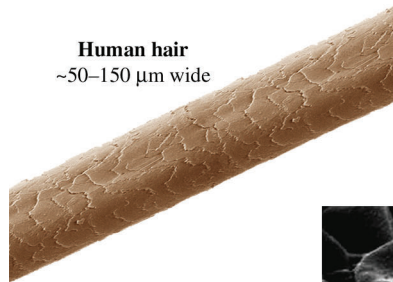


Ant  
~5 mm

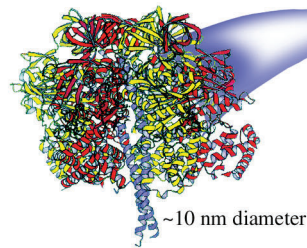
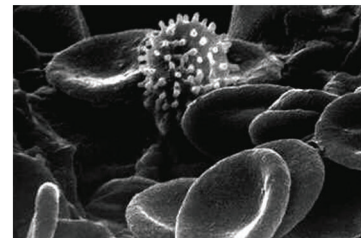
Fly ash  
~10–20  $\mu\text{m}$



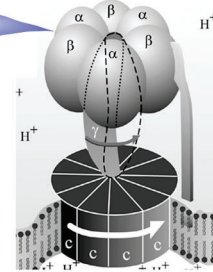
Human hair  
~50–150  $\mu\text{m}$  wide



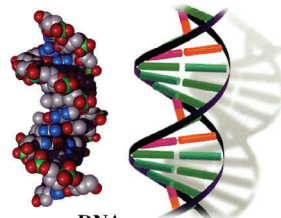
Red blood cells  
with white cell  
~2–5  $\mu\text{m}$



~10 nm diameter

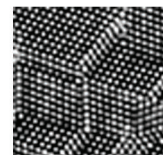


ATP synthase



DNA

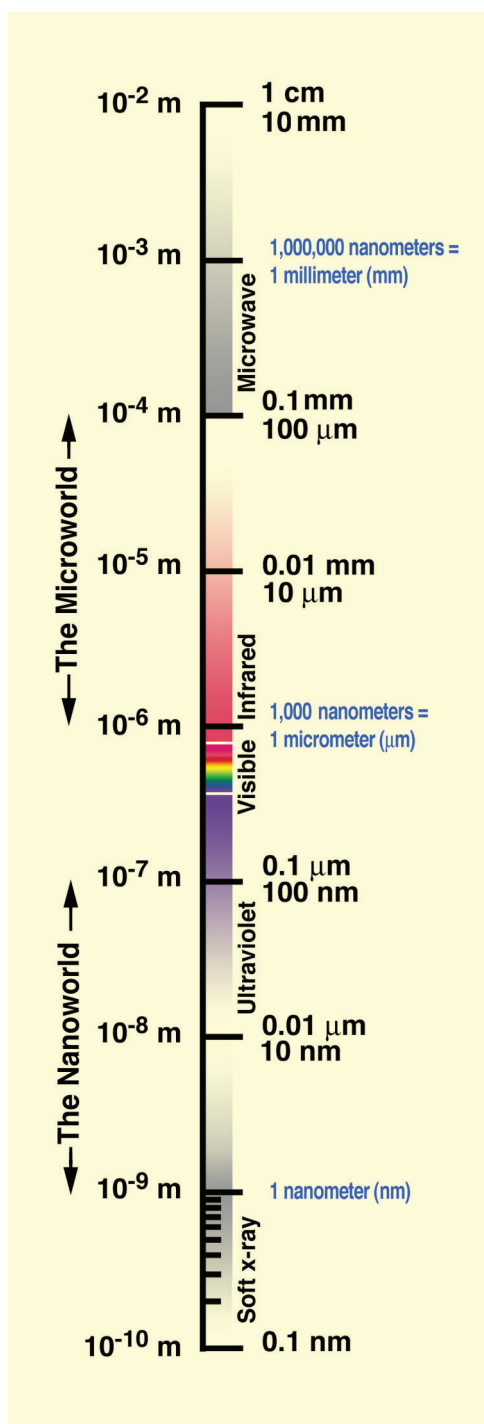
~2.5 nm diameter



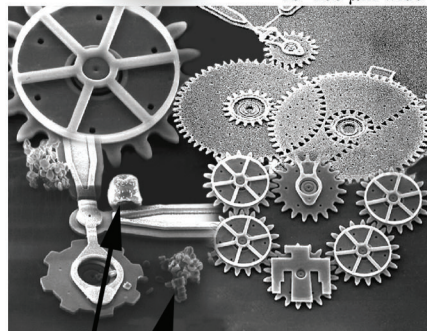
Atoms of silicon

Spacing: a few tenths of a nanometer

# things Manmade



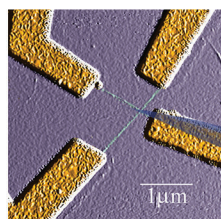
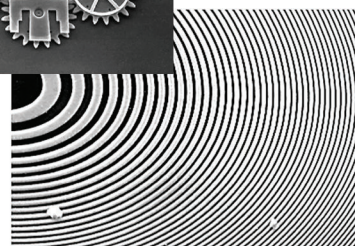
**Head of a pin**  
1–2 mm



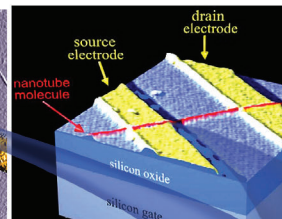
**Microelectromechanical devices**  
~10–100  $\mu$ m wide

Pollen grain  
Red blood cells

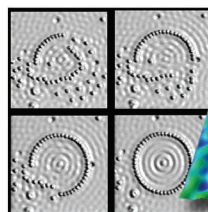
**Zone plate X-ray "lens"**  
Outermost ring spacing  
~35 nm



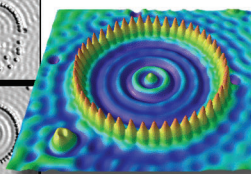
**Nanotube electrode**



**Nanotube transistor**



**Quantum corral of 48 iron atoms on copper surface**  
positioned one at a time with an STM tip  
Corral diameter 14 nm



**Carbon nanotube**  
~2 nm in diameter



National Science and Technology Council  
Committee on Technology  
Subcommittee on Nanoscale Science,  
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National Nanotechnology  
Coordination Office

4201 Wilson Blvd.  
Stafford II, Rm. 405  
Arlington, VA 22230

703-292-8626 phone  
703-292-9312 fax

[www.nano.gov](http://www.nano.gov)

